Catalogue of American Amphibians and Reptiles.

WEBB, ROBERT G. 1980. *Thamnophis cyrtopsis.*

Thamnophis cyrtopsis (Kennicott)
Black-necked garter snake

E[utaenia]. cyrtopsis Kennicott, 1860:333. Type-locality, "Rinconada Coahuila, Mexico," determined as approximately 20 miles northeast of Ramos Arizpe, Coahuila, just across state line in Nuevo León by Conant (1968:10; map, p. 2). Holotype, National Museum of Natural History 8067 (formerly No. 920), adult male, collected by Lieut. Darius Nash Couch in 1853 (not examined by author).

Thamnophis cyrtopsis: Cope, 1861:299.

[Tropidonotus ordinatus] Var. *eques* (*nec* Reuss): Boulenger, 1893:209. Misapplication of name. See NOMENCLATURAL HISTORY.

Eutaenia eques (*nec* Reuss): Cope, 1896:1009.

[Thamnophis] eques (*nec* Reuss): Ruthven, 1908:158.

Thamnophis dorsalis: Fitch and Milstead, 1961:112. Application of older name. See NOMENCLATURAL HISTORY.

• CONTENT. Five subspecies are recognized: *collaris, cyrtopsis, ocellatus, postremus*, and *pulchrilatus*.

• DEFINITION. A species of *Thamnophis* having 19-19-17 dorsal scale rows and pale longitudinal stripes. The lateral stripe is on the second and third scale rows, but the first three rows may be whitish (ventrolateral dark stripe on first scale row absent). The vertebral stripe is usually distinct extending the length of body onto tail and is usually confined to the vertebral row. An indented black collar is present, or it is separated by the vertebral stripe into two black blotches. The mostly uniform dorsolateral areas lack red, but may show evidence of a black-blotched checkerboard pattern; blotching is usually prominent on the neck. There are seven or eight supralabials. The supralabial sutures are black; more than one of the posterior infralabial sutures may be black. The ventral surfaces are generally immaculate. The tongue is red, black-tipped. Ventrals vary from 130 to 184 and subcaudals from 64 to 109, and both average fewer in females than males. Maxillary teeth are 27 (*T. c. postremus*, Smith, 1942; *T. c. collaris*, Webb, in press).

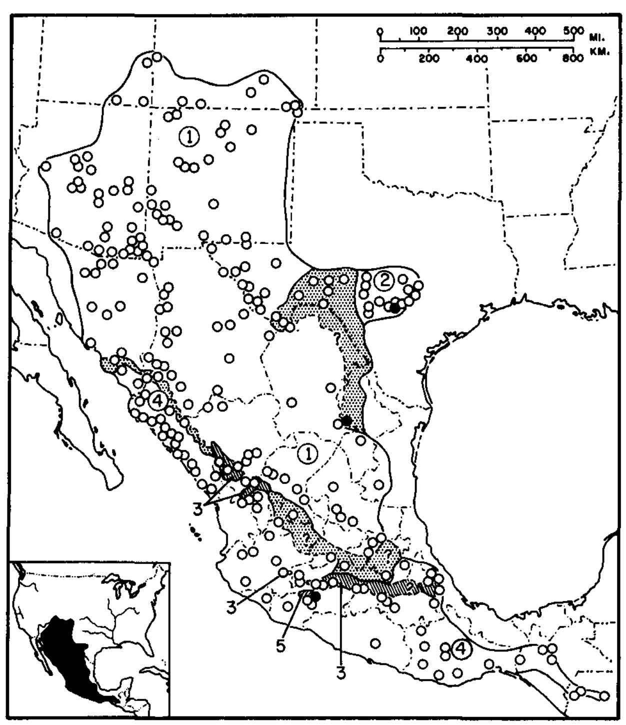
• DESCRIPTIONS. General descriptions of *T. c. cyrtopsis* are in Conant (1975), Milstead (1953), Shaw and Campbell (1974), Stebbins (1954, 1966), Webb (1966), and Wright and Wright (1957); *T. c. ocellatus* in Milstead (1953), Conant (1975), and Wright and Wright (1957); *T. c. collaris* in Webb (1966, 1978, in press); *T. c. pulchrilatus* in Webb (1966, 1978); and *T. c. postremus* in Duellman (1961) and Webb (1978).

• ILLUSTRATIONS. Colored illustrations of *T. c. cyrtopsis* are in Conant (1975), Heymann (1975, captioned as *eques*), Schmidt and Inger (1957), Shaw and Campbell (1974), and Stebbins (1966), and of *T. c. ocellatus* in Conant (1975). Black and white photographs and drawings of *T. c. cyrtopsis* are in Cope (1900, aspects of scutellation of holotype of *aurata*), Fowlie (1965), Milstead (1953, side of head-neck), Webb (1966, including holotype of *cyclides*), Woodbury (1931), and Wright and Wright (1957:fig. 220, only figs. 3 and 7 top to bottom); of *T. c. ocellatus* in Milstead (1953, side of head-neck), and Wright and Wright (1957:fig. 220, only figs. 1, 5, and 6 top to bottom); of *T. c. collaris* in Jan and Sordelli (1867) and Webb (1966; 1978, including supralabial pattern; in press, including holotype of *salvini*); of *T. c. pulchrilatus* in Duellman (1961:fig. 10A, body pattern) and Webb (1966, including holotype; 1978, supralabial pattern), and of *T. c. postremus* in Duellman (1961:fig. 10B, body pattern) and Webb (1978, holotype and supralabial pattern).

• DISTRIBUTION. The geographic range of *T. cyrtopsis* extends from the southwestern United States (southeastern Utah and southern Colorado south through Arizona, New Mexico, and west Texas) south through most of Mexico into Guatemala. The habitat varies from arid deserts and grasslands (usually in vicinity of rocky foothills) to highland pine-oak forests and tropical lowlands. In Mexico, *T. c. pulchrilatus* seems to occur in isolated populations in highland boreal forests. The Nearctic *T. c. cyrtopsis* and Neotropical *T. c. collaris* intergrade at lower elevations, and each subspecies may intergrade with *T. c. pulchrilatus*, in some places providing three-way intergradation; only one region of intergradation involving any two or three of these subspecies is indicated on the distribution map.

• FOSSIL RECORD. None has been definitely assigned to *T. cyrtopsis*. Holman (1968, 1970) discussed material as possibly representing *T. cyrtopsis*, but noted the difficulty in distinguishing species of *Thamnophis*. In discussions comparing fossil *Thamnophis* vertebrae Auffenberg (1963:197) and Rogers (1976:190) commented on vertebrae of modern *T. cyrtopsis*.

• PERTINENT LITERATURE. Milstead (1953) and Webb (1966, 1978) treated intraspecific relationships. Bibliographic citations are in Wright and Wright (1957) and for Texas in Raun and Gehlbach (1972); references cited by them are omitted below. Brief statements regarding morphology and/or habits and habitat in Arizona are in Coues (1875), Ruthven (1907), Van Denburgh and Slevin (1918), Van Denburgh (1922), Ortenburger and Ortenburger (1927), Gloyd (1937), Woodin (1953), Gates (1957), Lowe (1964), Pough (1966), Nickerson and Mays (1969), Hulse (1973); in New Mexico, Mosauer (1932), Lewis (1950), Gehlbach (1956, 1965), and Fleharty (1967); in Utah, Woodbury (1931); in Colorado, Maslin (1950); in Mexico, Dunkle and Smith (1937), Bogert and Oliver (1945), Smith and Laufe (1945), Smith, Nixon, and Smith (1950), Hall (1951), Davis and Smith (1953), Duellman and Lowe (1953), Taylor (1953), Langebartel and Smith (1954), Peters (1954), Chrapliwy and Fugler (1955), Zweifel and Norris (1955), Smith and Van Gelder (1955), Martin (1958), Tanner (1959), Fugler and Dixon (1961), Fouquette and Rossman (1963), McDiarmid (1963), Smith, Williams, and Moll (1963), Liner (1964), Duellman (1965), Williams and Wilson (1965), Conant (1969:97), Hardy and McDiarmid (1969), and Van Devender and Lowe (1977); in Guatemala, Webb (in press). Some specific topics include dorsal scale row reduction formula (Milstead, 1953), apical pits (Conant, 1961), hemipenial morphology (Webb, in press), melanistic peritoneum (Neill and Allen, 1961), karyotype, 2N = 36 (Baker, Mengden, and Bull, 1972), Duvernoy's gland (Taub, 1967), reproduction (Sabath and Worthington, 1959; Vitt, 1975), and oxygen consumption (Fleharty, 1963).



MAP. Only type-localities with precise data are plotted, as solid circles; open circles indicate other localities. Zones of intergradation are stippled. Question marks indicate uncertain limits of distribution and intergradation.

• NOMENCLATURAL HISTORY. Black-necked garter snakes were recognized as *Thamnophis cyrtopsis* until Boulenger (1893) incorrectly associated them with Reuss' name *eques*. His allocation of the name *eques* was followed for many years until Smith (1951), indicating that *eques* referred to another species, resurrected *cyrtopsis*. Gloyd and Smith (1942) and Smith (1942) had previously recognized two subspecies, *T. eques eques* and *T. e. cyrtopsis*. These two taxa then became known, respectively, as *T. cyrtopsis cyclides* and *T. c. cyrtopsis* (Smith, 1951). Fitch and Milstead (1961) then applied an older name, *dorsalis*, to the garter snakes that had been recognized as *T. cyrtopsis*. Webb (1966) then disposed of the name *cyclides* and recognized it as a composite of two taxa distinguished as *T. c. collaris* and *T. c. pulchrilatus*. In regard to the name *dorsalis*, Smith and Williams (1962) argued that the name *cyrtopsis* should remain unchanged, and Webb (1966) provided evidence of applicability of the former name to the upper Rio Grande population of *Thamnophis sirtalis*.

• REMARKS. Webb discussed the taxonomic status of three names, *fulvus* and *cerebrosus* (in press), and *vicinus* (1978), previously associated with *T. cyrtopsis*. Orthographic changes (e.g., *Eutainia, cryptopsis, cyryopsis*) are not noted in synonymies. Proposed common names of Mexican subspecies reflect general habitat (*pulchrilatus, collaris*) or geography (*postremus*).

• ETYMOLOGY. The name *cyrtopsis* (Gr. *cyrto-*, curved; Gr. *-opsis*, appearance) probably refers to the posterior curvature of the black nuchal blotches; *collaris* (L. *collare*, band or chain for neck) is in reference to the black collar; *ocellatus* (L. *ocellatus*, having little eyes) refers to the pattern on the side of the neck where the lateral pale stripe forms curved arches over the dark spots on the first dorsal scale row (Cope, 1880; Milstead, 1953); *postremus* (L. *postremus*, last, hindmost) is in reference to the peripheral location of the subspecies in the geographic range of the species as a whole (H. M. Smith, pers. comm.); *pulchrilatus* (L. *pulcher*, beautiful; L. *-latus*, bear, carry) presumably refers to the contrasting striped pattern.

1. *Thamnophis cyrtopsis cyrtopsis* (Kennicott) Western black-necked garter snake

E[utaenia]. cyrtopsis Kennicott, 1860:333. See species account.
[Thamnophis cyrtopsis] Var. *cyclides* Cope, 1861:299. Type-locality, "Cape St. Lucas" (in error); designated as Guanajuato, Guanajuato by Smith and Taylor (1950:330), but determined as Fort Buchanan (=near Sonoita Creek above Patagonia, 45 mi. SE Tucson, Santa Cruz County), Arizona by Webb (1966). Holotype, National Museum of Natural History 5023, young female, probably collected by Dr. B. J. D. Irwin on 10 October 1861 (examined by author).
Eutaenia cyrtopsis cyrtopsis: Cope, 1892:656.
Eutaenia aurata Cope, 1892:659. Type-locality, "near Lake Valley, in southern New Mexico." Holotype, Academy of Natural Sciences of Philadelphia 10747, collected by E. D. Cope (not examined by author).
Eutaenia eques eques (*nec* Reuss): Cope, 1900:1050.
Eutaenia eques aurata (*nec* Reuss): Cope, 1900:1052.
Thamnophis eques cyrtopsis (*nec* Reuss): Gloyd and Smith, 1942:234.
Thamnophis cyrtopsis cyrtopsis: Smith, 1951:140.
Thamnophis dorsalis dorsalis: Fitch and Milstead, 1961:112.

• DEFINITION. Black nuchal blotches usually are divided by the vertebral stripe. The top of the head is gray. The pale to dark brown dorsolateral areas are mostly devoid of dark markings, except on the neck. The ventrolateral stripe is pale brown, often not much darker than pale lateral stripe; small black dots, usually regularly spaced and arranged in pairs (one above the other), are usually present along the ventrolateral stripe. There are eight supralabials. More than one of the posteriormost infralabial sutures may be black. There are more ventrals in males (mean 171, range 164–178) and females (167, 157–170) than in *T. c. ocellatus* (*q.v.*).

• REMARKS. Milstead (1953) and Fitch and Milstead (1961) mentioned the holotype as having features of intergrades between *T. c. cyrtopsis* and *T. c. ocellatus*. Stejneger (1902) declared "that Cope's *ocellata* . . . is absolutely identical with Kennicott's type of *cyrtopsis*."

2. *Thamnophis cyrtopsis ocellatus* (Cope) Eastern black-necked garter snake

Eutaenia cyrtopsis, subsp. *ocellata* Cope, 1880:22. Type-locality, "near Helotes, Tex." Two syntypes, both formerly National Museum of Natural History 10528 (Cochran, 1961), but now Academy of Natural Sciences of Philadelphia 10633–34 (Malnate, 1971), collected by Gabriel W. Marnock (not examined by author).
Eutaenia eques ocellata (*nec* Reuss): Cope, 1896:1009.
Thamnophis cyrtopsis ocellata: Milstead, 1953:373.
T[hamnophis]. dorsalis ocellata: Fitch and Milstead, 1961:112.

• DEFINITION. Black nuchal blotches are separated by the vertebral stripe. The top of the head is black. The dorsolateral areas consist of large black blotches in a single row anteriorly, and are either mostly uniformly black or consist of two rows of spots arranged in checkerboard fashion posteriorly. Anteriorly the ventrolateral stripe consists of large, regularly spaced, black spots, and the pale lateral stripe has a wavy aspect owing to encroachment (from above and below) of black spots. The vertebral stripe occupies parts of adjacent rows and may be orangish. There are usually eight supralabials. More than one of the posterior infralabial sutures are often black. Paired black spots may occur laterally on ventrals. Ventrals in males (mean 160, range 157–164) and females (157, 148–165) average fewer than in *T. c. cyrtopsis* (*q.v.*).

• REMARKS. The name *ocellatus* is here employed as a "justified emendation" to conform to agreement in gender (Gr. *ophis*, m).

3. *Thamnophis cyrtopsis pulchrilatus* (Cope) Mexican highland black-necked garter snake

Eutaenia pulchrilatus Cope, 1885:173, 174. Type-locality, "Locality uncertain, but probably Guanajuato." Holotype, National Museum of Natural History 9899, female, received from Alfredo Dugès (examined by author).
Thamnophis eques eques (*nec* Ruess): Gloyd and Smith, 1942:234 (in part).
Thamnophis cyrtopsis cyclides: Smith, 1951:140 (in part).
T[hamnophis]. dorsalis cyclides: Fitch and Milstead, 1961:112 (in part).
Thamnophis cyrtopsis pulchrilatus: Webb, 1966:63.

• DEFINITION. A pale striped pattern usually contrasts with a black background. The dorsolateral areas are either dark brown with an indistinct checkerboard pattern of black blotches or are black and confluent with the black nuchal collar. Pale keels on most dorsolateral scales often form thin longitudinal lines. The ventrolateral stripe is black (paler in young), or brown-black including a regularly spaced series of black spots or two black dots (one above the other). There are seven supralabials. Characteristic is a prominent black, barlike mark between the last two supralabials. None of the infralabial sutures (except posteriormost) is black.

4. *Thamnophis cyrtopsis collaris* (Jan) Mexican tropical black-necked garter snake

T[ropidonotus]. collaris Jan, 1863:69. Type-locality, "Messico," restricted to Guanajuato, Guanajuato by Smith (1951:140). Holotype, originally deposited in "M[useum] Bonn," not known to exist.
Tropidonotus sirtalis var. *collaris*: Garman, 1884:24, 139.
Eutaenia collaris: Cope, 1887:73.
Eutaenia cyrtopsis collaris: Cope, 1892:657.
Thamnophis cyrtopsis collaris: Van Denburgh, 1895:151.
Eutaenia eques collaris (*nec* Reuss): Cope, 1900:1051.
Thamnophis eques eques (*nec* Reuss): Gloyd and Smith, 1942:234 (in part).
Thamnophis sumichrasti salvini Smith, Nixon, and Smith, 1950:579. Type-locality, "Rio Chixoy, below the town of Cubules (?Cubilquitz), Guatemala"; town designated as Cubulco by Stuart (1963:120). Holotype, British Museum (Natural

History) 1946.1.23.62 (formerly No. 1869.2.22.3), female, collected by Osbert Salvin (examined by author).

Thamnophis cyrtopsis cyclides: Smith, 1951:140 (in part).

T[hamnophis]. dorsalis cyclides: Fitch and Milstead, 1961:112 (in part).

Thamnophis cyrtopsis salvini: Stuart, 1963:120.

• DEFINITION. The black nuchal collar is not divided into two nuchal blotches. The top of head is gray or brownish. The mostly uniform brown to blackish dorsolateral areas usually show some evidence of a black-blotched checkerboard pattern (most prominent anteriorly). The narrow vertebral stripe is distinct. The first three scale rows are whitish, either mostly devoid of markings or having irregularly arranged small black markings; usually prominent is a relatively large row of black marks along the common margin of the first scale row and ventral scales. There are eight supralabials. Black marks are usually lacking on infralabial sutures (except posteriormost).

5. *Thamnophis cyrtopsis postremus* Smith Tepalcatepec Valley black-necked garter snake

Thamnophis eques postremus (*nec* Reuss) Smith, 1942:109. Type-locality, "El Sabino, Michoacan." Holotype, Field Museum of Natural History 120235 (formerly E. H. Taylor—H. M. Smith Coll. No. 5275), female, collected by Hobart M. Smith (examined by author).

Thamnophis cyrtopsis postremus: Smith, 1951:140.

T[hamnophis]. dorsalis postremis [*sic*]: Fitch and Milstead, 1961:112.

• DEFINITION. There is a black nuchal collar. The vertebral stripe is indistinct, usually not extending on tail. Pale brown dorsolateral areas have a contrasting pattern of relatively small, dark alternating blotches extending the length of the body. The first three scale rows are pale, mostly unicolor, but often have scattered, small black flecks. Black supralabial markings are well developed, with a characteristic large comma or thorn-shaped mark on the next to last suture. Seven supralabials (60%) are more frequent than eight (37%). There is often more than one black mark on the infralabial sutures. Small, paired black spots usually occur laterally on ventrals. Ventral scales (males, mean 146, range 142–151; females, 140, 136–142) are the fewest of any subspecies.

• REMARKS. Future workers should investigate possible affinities of *T. c. postremus* with *Thamnophis marcianus* (Webb, 1978).

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